DUAL CITIZENSHIP RIGHTS: DO THEY MAKE MORE AND RICHER CITIZENS?*

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In the 1990s, Colombia, the Dominican Republic, Ecuador, Costa Rica, and Brazil passed dual citizenship laws granting their expatriates the right to naturalize in the receiving country without losing their nationality of origin. I estimate the effects of these new laws on naturalization rates and labor market outcomes in the United States. Based on data from the 1990 and 2000 U.S. censuses, I find that immigrants recently granted dual nationality rights are more likely to naturalize relative to immigrants from other Latin American countries. They also experience relative employment and earnings gains, together with drops in welfare use, suggesting that dual citizenship rights not only increase the propensity to naturalize but may also promote economic assimilation. The effects of dual citizenship on improved economic performance, if mediated through naturalization, are consistent with American citizenship conferring greater economic opportunities.

In the 1990s, the number of naturalized citizens in the United States rose for the first time in decades, from 6.5 million in 1990 to 7.5 million in the mid-1990s to over 11 million by 2002 (Fix, Passel, and Sucher 2003). The increase in naturalization was not merely due to high levels of immigration during the 1980s and 1990s. Naturalization rates among eligible populations grew as well: the share of legal immigrants who had naturalized rose from 39% in 1996 to 49% in 2002. In light of the substantial consequences of immigrants' citizenship acquisition not only for the individual but also for the community and the larger society, these trends and the continuing high levels of legal immigration make understanding the determinants of naturalization increasingly important.

By conferring the right to vote and to hold most elected offices, naturalization is an immigrant's gateway for political participation. As a result, immigrants' citizenship acquisition might have implications for which politicians are elected, what policies are enacted, and how resources are allocated (Bueker 2006; DeSipio 1996a, 1996b). Since U.S. citizens—relative to legal permanent resident aliens—can sponsor a wider array of relatives and relatives outside of the annual immigration cap, immigrants' naturalization can also have important population effects. In particular, because of the rules of the current U.S. immigration law, immigrants' propensity to naturalize directly affects the so-called immigration "multiplier"—the number of future immigrants who come to the United States as the result of the admission of one current immigrant (Jasso and Rosenzweig 1990).

Immigrants who meet the admission, age, and residency requirements for naturalization decide whether to apply for citizenship. The decision depends on the perceived benefits and costs of naturalization and the weights attached to them. The importance of citizenship has risen since the mid-1990s, when both welfare and illegal immigration reforms made access to public benefits and other selected rights increasingly dependent on citizenship. Besides the effects of these policy changes, other commonly cited explanations for the surge in naturalization in the 1990s include changes in immigration laws in the late 1980s—which allowed large numbers of immigrants to apply for citizenship in the mid-1990s—and anti-immigrant reform attempts (such as in California)—which might have led immigrants to naturalize as a

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way to protect themselves and their families against future restrictive legislation, or to gain the right to cast their vote against it. The common denominator of the available explanations is that they are about domestic administrative and political changes and they neglect to consider those sending-country policies that might have affected immigrants' propensity to naturalize in the 1990s. Notably, between 1991 and 1996, some important sending countries (Colombia, the Dominican Republic, Ecuador, Costa Rica, and Brazil) changed their laws and granted their expatriates the right to naturalize in the receiving country without losing their nationality of origin. Immigrants from these countries may be more likely to naturalize because of the decrease in a major cost of naturalization, specifically the need to forfeit rights in their country of origin. Figure 1 provides prima facie evidence suggesting that changes in dual citizenship laws partly determine trends in naturalization in the 1990s. The figure, which is drawn from administrative data on the number of naturalizations processed per year by the Immigration and Naturalization Service (INS),[1] shows that even if growth in naturalization is steep among immigrants from all countries (top panel),[2] once country and year fixed effects are removed, there is an increasing residual trend in naturalization among immigrants from countries that granted dual citizenship rights in the 1990s, but not among immigrants from other Latin American countries (bottom panel).

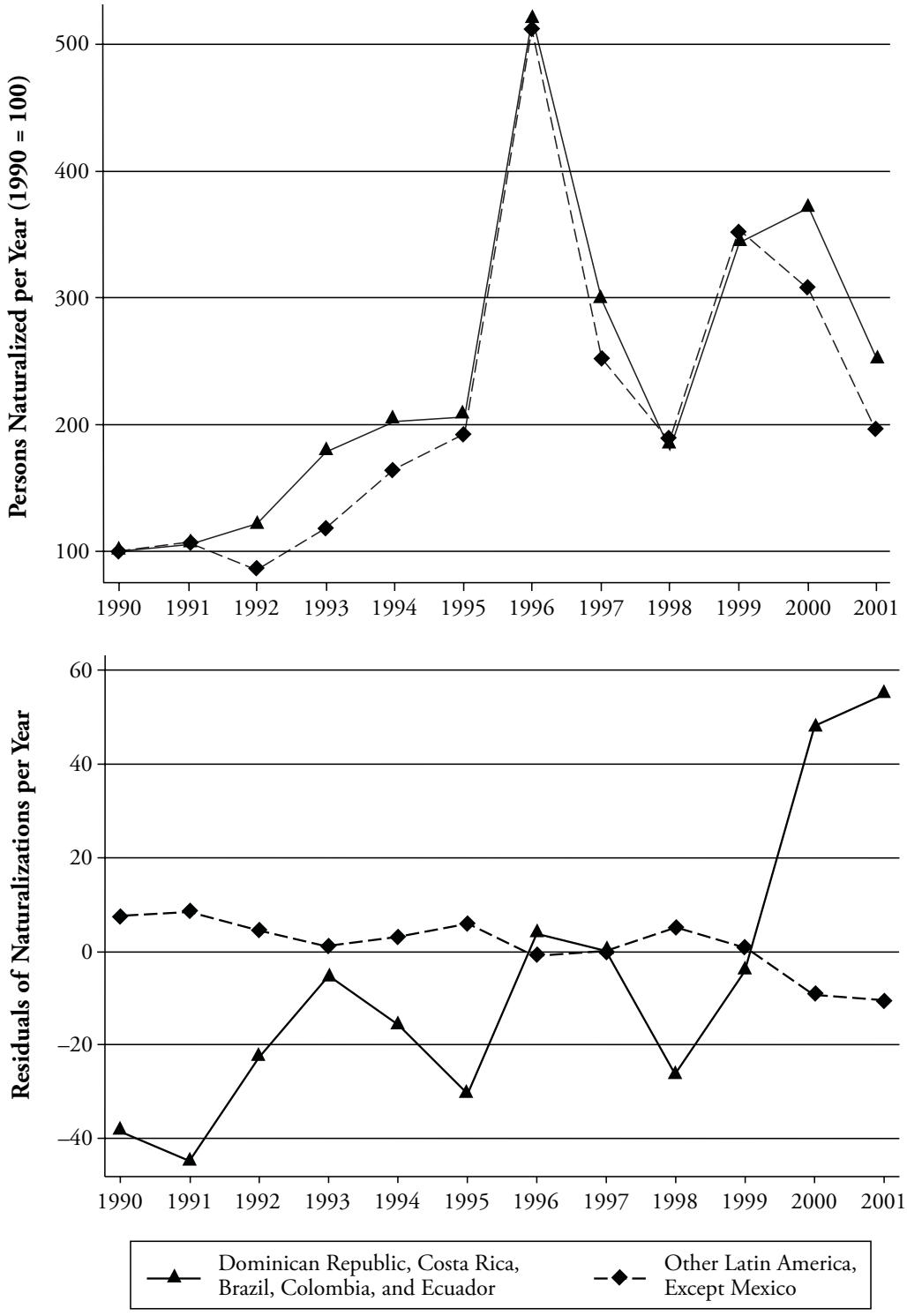
The first goal of this article is to assess whether recognition of dual citizenship rights has a causal effect on naturalization, using changes in dual citizenship laws by the five countries listed above to set up a quasi-experimental research design that controls for country of origin and period effects. This amounts to comparing the change over time in naturalization rates of immigrants coming from countries that recently legalized dual citizenship to the change in naturalization rates of immigrants from Latin American countries that did not change the law. For the proposed identification strategy to hold, I need to rule out that other incentives to naturalize during the 1990s (such as welfare reform) had differential effects by country of origin. To address this identification issue, I use individual-level data from the 1990 and 2000 censuses to model the effects of these other incentives as a function of place of residence and sociodemographic characteristics (not available by year and country of origin in administrative data). In these model specifications, changes in dual nationality policies are arguably the only source of systematic differences over time in the incentive to naturalize by country of origin. For example, if citizenship were indeed sought after welfare reform to protect access to social benefits, then this effect should mainly depend on place of residence (because different states implemented different welfare reform programs) and on personal characteristics (such as education and gender) that predict eligibility for means-tested, categorically restricted benefits like the ones offered by the U.S. welfare system.

The estimation results provide strong support for the hypothesis that changes in dual citizenship laws caused naturalization to rise. In the aftermath of welfare reform, a highly contentious issue of debate has been whether immigrants would be led to choose to become citizens not because they want to fully participate in the U.S. political system, but because naturalization is the price to pay to receive welfare benefits. If so, immigrants who naturalize would be self-selected to include large numbers of persons who qualify to make claims on the welfare state. In light of the finding that some of the rise in naturalizations in the 1990s can be attributed to changes in dual citizenship rights, a different question becomes of interest: how does recognition of dual citizenship rights by sending countries change the pool of naturalized citizens in the United States? Furthermore, how does it affect the process of economic assimilation of immigrants residing in the United States?

1. U.S. Citizenship and Immigration Services (USCIS) since 2003.

2. Caution should be exercised in using these data to draw conclusions about yearly trends in naturalization because of the large backlog in processing applications. Also, it should be noted that the reported figures are not informative of trends in the rate of naturalization, that is, the ratio between naturalized citizens and foreign-born individuals eligible to naturalize. See Baker (2007) for evidence on trends in naturalization rates calculated from non–publicly available matched immigration and naturalization data.

Figure 1. Naturalizations in the 1990s: Countries Newly Granting Dual Citizenship Versus Other Latin American Countries



Notes: Data on the number of naturalizations processed per year, by country of origin of the persons who naturalized. Data are normalized to 100 in 1990. The bottom panel plots the residuals of a regression that includes country-of-origin and year fixed effects.

Source: U.S. Immigration and Naturalization Service, *2001 Statistical Yearbook*.

On one hand, one could argue that dual nationality rights are likely to impede assimilation. This notion is in fact the main reason why dual citizenship has been traditionally criticized and opposed by receiving countries, and rests on the assumption that a migrant's ties with the country of origin and the country of current residence should be modeled as a zero-sum game. Integration into the United States, however, carries a lower cost once dual nationality rights are recognized, and this might promote stronger attachment to the destination country and facilitate economic and social assimilation because of (or even beyond) the effects mediated by the increased likelihood of naturalization. In this article, I propose ways to empirically investigate this issue.

First, in an attempt to assess who values dual citizenship rights, I estimate whether the effects of dual citizenship recognition on naturalization are heterogeneous across sociodemographic groups. I find sizable differences by education: dual citizenship rights raise the propensity to naturalize in the target group with high school or higher education, but have a small and statistically insignificant effect on those without a high school diploma. This finding suggests that the implied benefits of dual citizenship are larger for more-educated immigrants. For instance, education might be positively correlated with a worker's likelihood of being employed in occupations in which the possibility of being flexibly reassigned to jobs in either country is valued, or it might be correlated with the likelihood of being involved in business transactions with the country of origin.

I then study whether dual citizenship rights affect the economic assimilation of immigrants in the United States by estimating the effects of changes in dual citizenship laws on employment and income measures. In equations in which the time-varying coefficients of sociodemographic characteristics and state of residence capture the effects of changing local labor market conditions and changing returns to observable skills over the 1990s, immigrants from countries that recently granted their expatriates dual citizenship rights are found to experience employment gains in 2000 relative to immigrants from other countries. This finding supports the possibility that dual citizenship rights facilitate the process of immigrants' labor market assimilation. When studying differential trends in annual earnings, I find that in the 1990s, there is no statistically significant differential change across the two groups. However, when splitting the analysis by education, I estimate a 2.5% relative rise in the annual earnings of the target group with at least a high school diploma. Consistent with improved labor market outcomes, estimates show that changes in the laws are associated with a lower probability to receive income from welfare in the target group and, for those on welfare, with smaller benefit payments.

BACKGROUND

A Model for the Decision to Naturalize

Under U.S. immigration law, immigrants granted legal permanent residence (holding a "green card") are eligible to naturalize once they are at least 18 years old[3] and have continuously resided in the United States for five years (three years in the case of spouses of U.S. citizens). In a utility-maximizing framework, immigrants who fulfill the requirements to naturalize decide to apply for citizenship if the benefits exceed the costs. Citizenship grants immigrants certain political and social rights to which permanent resident aliens are not entitled, such as the ability to vote and therefore to influence political decisions and outcomes. Citizenship also makes it easier to sponsor relatives. Immediate relatives of U.S. citizens are not subject to immigration quotas, so becoming a citizen moves an immigrant's immediate relatives up in the queue to get green cards. Furthermore, a citizen can sponsor not only her spouse and unmarried children of any age, as legal permanent residents are allowed to, but also her married children of any age, siblings, and parents.

3. Children residing in the United States derive citizenship from their parents.

The importance of citizenship has risen since the mid-1990s. The welfare legislation passed in 1996 (Personal Responsibility and Work Opportunity Reconciliation Act, PRWORA) restricted foreign-born eligibility for a wide range of public programs, with all restrictions on welfare use by foreign-born persons lifted once an immigrant becomes a naturalized citizen. A consequence of illegal immigration reform (the 1996 Illegal Immigration and Immigrant Responsibility Act) is that only foreign-born people who have naturalized are granted the right to "residential security," that is, the right to remain in the country and not be deported for minor crimes or misdemeanors.

Citizenship also entails costs. First, there are costs related to the naturalization process.[4] Second, depending on the dual citizenship laws in the country of origin, those who naturalize in the United States might be obliged to forfeit rights in their home country. Both practical and psychological costs could arise from being denied dual nationality. Immigrants can be hesitant to give up the instrumental benefits of a second passport, such as the right to travel freely back and forth to the country of origin without special visas, the right to work in the country of origin, or full access to public services and social benefits. They might also be reluctant to give up the right to vote and to influence the political outcomes in their home country. Psychologically, they may wish to continue to identify themselves as citizens of their country of birth and to be able to pass their national identity to their children.

Empirical Research on the Determinants of Naturalization

Motivated by the utility-maximizing framework presented in the previous section, individual-level analyses generally model immigrants' citizenship as an outcome of personal attributes: characteristics like gender, age, and educational attainment are included as indicators of how people perceive the relative costs and benefits of naturalization.[5] Previous work has also emphasized that immigrants' naturalization decisions are likely to be influenced by contextual factors in the destination country—such as ethnic social networks (Liang 1994; Yang 1994), natives' attitudes toward immigrants (Van Hook, Brown, and Bean 2006), public funding, and programmatic support (Bloemraad 2006b)—and by characteristics of the sending countries—such as proximity to the United States, economic indicators, and political regimes (Bueker 2006; Jasso and Rosenzweig 1990; Yang 1994).

Only a few studies have empirically investigated the effects of dual citizenship on immigrants' naturalization. Apparently against the hypothesis that dual citizenship encourages naturalization, Yang (1994) estimated that in 1980, the odds of naturalization of immigrants from countries that recognize dual citizenship were about 20% lower than those from countries without dual citizenship. On the contrary, Jones-Correa (2001b) found that for nine Latin American immigrant groups from countries that granted dual nationality between 1965 and 1997, the naturalization rate increased in the period after recognition of dual nationality. Both studies, however, are affected by serious identification problems. Yang's cross-sectional analysis might be confounded by the existence of (unobservable or hard-to-measure) country-of-origin–specific characteristics that are correlated with dual citizenship laws and also directly affect immigrants' preferences for naturalization. Jones-Correa's before-after strategy, on the other hand, might be confounded by the existence of trends over time in the rate of change of naturalization of immigrants in the United States (e.g., due to changes in U.S. policies).

In order to identify whether dual citizenship rights have a causal effect on American citizenship acquisition (as well as on other outcomes), I compare the change over time in outcomes of immigrants coming from countries that have recently legalized dual citizenship ("treatment" group) with the change over time in outcomes of immigrants

4. To naturalize, applicants must pay a fee ($320 in 2006, plus $50 for fingerprinting); demonstrate the ability to read, write, speak, and understand English; and pass an examination on U.S. government and history.

5. At the same time, sociodemographic characteristics serve as measures of the capacity to naturalize.

from countries that have not changed the law ("control" group). As compared with cross-sectional or before-after analyses, this identification strategy, commonly referred to as *difference-in-differences* analysis, has the advantage of controlling, in a parsimonious way, for (1) differences in outcomes across origin groups that are constant over time, and (2) changes over time in outcomes that are constant across origin groups. There are, however, several identification assumptions that need to hold for the proposed strategy to identify the *effects* of dual citizenship laws. First, we need to assume policy exogeneity; that is, changes in the laws should not be due to governmental responses to variables associated with past or expected future outcomes. I discuss this assumption in the next section. Second, we need to assume that changes in the outcome variables observed in the control group are a good proxy for what would have been observed in the treatment group if the laws did not change. This assumption crucially depends on the "comparability" between treatment and control groups and on the absence of time-varying factors, other than changes in the laws, that differentially affected immigrants' incentives to naturalize, or the other outcomes of interest, across treatment and control groups. To increase the likelihood that these conditions hold, I restrict the analysis both to immigrant groups from a given sending region (Latin America) and to legislative changes that took place in a given period (the 1990s). Additional sample restrictions and specification choices that are meant to increase the internal validity of the design are discussed in later sections.

Legislative Factors and Related Estimation Issues

Ideally, identification of the effects of the recognition of dual nationality rights on the propensity to naturalize would stem from an experiment that randomly assigns changes in the laws to some countries and not to others. In this article, I use instead *observed* changes in dual citizenship laws between 1990 and 2000 to set up a quasi-experimental research design (Meyer 1995).

Five countries in Latin America granted dual nationality in the 1990s: Colombia made this change in 1991; the Dominican Republic, in 1994; Costa Rica and Ecuador, in 1995; and Brazil, in 1996. As documented in Jones-Correa (2001b), the process of recognition of dual nationality differs among these countries. Colombia, Ecuador, and the Dominican Republic decided to recognize dual nationality primarily as a response to pressures from their overseas compatriots (in particular, those residing in New York City), while Brazil and Costa Rica allowed it with little concerted pressure from the immigrant community abroad. Concerns about the internal validity of the research design would arise if immigrants from the first set of countries expected the legal changes to take place and started to naturalize in advance. But Colombian organizations in New York began lobbying for dual nationality no earlier than 1988, so the expectation of legal changes should not have caused substantial increases in naturalization by 1990 (given the long processing times). Likewise, even if Ecuadorian and Dominican lobbying for dual citizenship began earlier than the Colombian lobbying, serious discussions about this option started taking place only in 1990.

There is a further concern of policy endogeneity that needs to be explored. Sending countries might be willing to grant dual citizenship to foster ties with their expatriates, hoping these ties pay off in terms of current remittances or future investments. If so, rising naturalizations or improving economic conditions of expatriates might predate the policy changes, and this would invalidate the research design. Costa Rica passed its dual nationality amendments in response to dismay among the public that the first Costa Rican astronaut was going into space as an American citizen, not as a Costa Rican, so the exogeneity assumption should hold. As a way to address the concern of policy endogeneity for the other countries, I present results from placebo regressions for 1980 and 1990 that show that there is no evidence of differential trends in outcomes across treatment and comparison groups that are consistent with the above policy endogeneity scenario.

In 1996, Mexico also granted its citizens dual citizenship rights, but only of a temporary and limited nature. A nonloss of nationality provision took effect in March 1998 and allowed Mexicans who had become U.S. citizens to apply for dual citizenship by March 20, 2003.[6] In the summer of 1996, Mexico also recognized the right of citizens residing abroad to vote, but there were such delays in the implementation of the reform that Mexican citizens in the United States could not exercise their right to vote in the 2000 Mexican presidential elections. The temporary and limited nature of the dual citizenship rights granted to Mexicans suggests that immigrants from Mexico might not belong to either the treatment or the control group. For this reason (and a further reason explained in the next section), I drop immigrants of Mexican origin from the analysis.

There are two other countries in the world that granted dual citizenship rights in the 1990s: Italy and Hungary. However, to increase comparability between treatment and control groups, I restrict the analysis to immigrants from Latin American countries.

Finally, as regards recognition of dual citizenship in the United States, the Immigration and Nationality Act (INA) does not define dual citizenship or take a position for or against it. The Supreme Court of the United States has stated that dual citizenship is a "status long recognized in the law" and that "a person may have and exercise rights of nationality in two countries and be subject to the responsibilities of both. The mere fact that he asserts the rights of one citizenship does not without more mean that he renounces the other" (*Kawakita v. United States*, 343 U.S. 717, 1952). The State Department did denationalize some Americans who took another country's citizenship in the 1950s and 1960s, but later court rulings made dual citizenship legal for the American-born. The legal position of naturalized citizens is less clear, but in practice, they can keep a former nationality: foreign-born migrants who naturalize in the United States are formally required to state under oath that they are renouncing their old citizenship, but there are no further steps to enforce this declaration.[7]

DATA

In this article, I use microdata from the 1990 and 2000 U.S. censuses, specifically the 5% and 1% Integrated Public Use Microdata Series (IPUMS) files (Ruggles et al. 2004). I restrict the analysis to working-age, foreign-born individuals from Latin American countries who were at least 18 when they arrived in the United States and who have been living in the United States for at least five years (three years if married to a U.S. citizen). Adulthood upon arrival in the United States is imposed to rule out cases of immigrants deriving citizenship from their parents' naturalization, in order to focus on the voluntary decision to naturalize. Another reason to exclude childhood immigrants is that younger arrivers likely differ from older arrivers with respect to language acquisition and other experiences affecting labor outcomes (Bleakley and Chin 2004).

The age and residency restrictions might not be sufficient to identify immigrants eligible to naturalize. There are ineligible foreign-born individuals in the census, such as nonimmigrants and undocumented immigrants. The likelihood of including nonimmigrants is reduced by the length-of-residence sample restriction,[8] and further, by limiting the analysis

6. After that date, Parliament extended dual citizenship rights.

7. The oath of allegiance taken by all who become U.S. citizens begins, "I hereby declare, on oath, that I absolutely and entirely renounce and abjure all allegiance and fidelity to any foreign prince, potentate, state, or sovereignty of whom or which I have heretofore been a subject or citizen. . . ." However, the United States does not require official notification that naturalized U.S. citizens have formally renounced their nationality of origin.

8. Nonimmigrant aliens (e.g., students and temporary workers) usually cannot stay in the United States longer than five or six years with the same type of visa. The problem persists, though, for foreign-born individuals who enter the United States as nonimmigrants and then adjust their status to legal permanent residents while residing in the United States. As shown in Table 4, estimation results are robust to increasing the length-of-residence restriction.

to Latin American immigrants.[9] The inclusion of illegal immigrants in the sample is problematic to the extent that rates of illegal immigration vary over time by country of origin. The five Latin American countries that allowed dual citizenship in the 1990s experienced particularly large increases in the estimated unauthorized resident population from 1990 to 2000 (U.S. INS 2003), and this should work against finding effects of dual citizenship laws on naturalization in samples drawn from census data. In the empirical investigation, I address the problem of changing rates of illegal immigration by dividing individual data on naturalization status by the probability of legal status by country of origin and census year. This procedure allows for estimates of naturalization rates among the eligible legal population. Probabilities of legal status, conditional on country of origin, census year, and at least five years of residence in the United States, are obtained from comparisons of the immigrant population represented in the census, adjusted for the estimated undercount (Costanzo et al. 2001; Robinson 2001), with estimates of the inflows of the unauthorized population developed by the INS (U.S. INS 2003; Warren 1995). The latter estimates exclude from the undocumented population some immigrant groups that received legal status through special amnesties at some point after entering the United States. For this reason, the derived probabilities of legal status might not be reliable in two cases: first, when involving immigrants from countries granted special temporary amnesties or Temporary Protected Status in the 1980s and 1990s (Guatemala, El Salvador, Honduras, and Nicaragua); and second, when involving immigrants who were legalized under the 1986 Immigration Reform and Control Act (IRCA) provisions. (These latter immigrants, still illegal in 1985, were mostly legalized by 1990 but at that time were still ineligible to naturalize). Of the 2.7 million illegal aliens who applied for legal permanent status under IRCA, 75% were from Mexico, and another 9% were from El Salvador and Guatemala. Excluding from the analysis immigrants from these countries should alleviate the problems posed by special temporary amnesty programs and by IRCA when deriving probabilities of legal status.

Information on citizenship comes from reported naturalization status. False reporting of citizenship has been shown to be a problem in the Current Population Survey (CPS; Passel and Clark 1997), and it appears to be present in the census as well. Overreporting of citizenship in the CPS, however, is found to be attributable to two groups: recent immigrants, who are excluded from our sample; and long-term immigrants from Mexico, who are excluded as well from most of the analysis.

Among the economic outcomes, I consider employment, welfare use, and income measures (they all refer to the year before the interview). Employment measures are defined to capture employment above a minimum threshold (working at least 20 weeks per year and 15 hours per week). A first measure of employment is the reporting of any work for profit or for pay. Separate regressions are also run for self-employment and for work for wages or salary, either in the private or public sector.[10] I define two income measures: total earnings from work and total income from welfare. The first includes annual earnings from wage/salary work and self-employment earnings, given that an individual may report earnings from both sectors (Lofstrom 2002); the second includes payments from Supplemental Security Income, Aid to Families with Dependent Children (or Temporary Assistance to Needy Families), and General Assistance. The GDP deflator for personal consumption expenditure is used to convert nominal amounts into 1989 dollars. Finally, I define a dummy variable for welfare use equal to 1 if the respondents received any positive income from public assistance programs.

9. Temporary admissions are much less likely among immigrants from Latin America than from the rest of the world. For example, in fiscal year 1996, people from Latin American countries represented 42% of all legal permanent residents admitted to the United States but only 18% of the almost 2 million nonimmigrants admitted, other than temporary visitors for pleasure or for business (U.S. INS 1997).

10. Workers with multiple sources of employment are classified according to the work relationship in which they spent the most time during their last employment spell.

Table 1. Selected Descriptive Statistics for Foreign-born by Country of Origin, 1990

Variable	Costa Rica, Dominican Republic, Brazil, Colombia, and Ecuador	Mexico, El Salvador, Guatemala, Honduras, and Nicaragua	Other Latin America
Naturalized Citizen	0.33	0.24	0.45
Probability Legal Status	0.82	0.41	0.89
Self-employed	0.06	0.05	0.08
Private Employee	0.54	0.57	0.56
Public Employee	0.05	0.03	0.09
Log Total Earnings	9.50	9.23	9.66
Welfare Use	0.07	0.04	0.04
Log Welfare Payments	8.10	7.77	7.78
Living in the United States More Than 10 Years	0.65	0.65	0.67
Female	0.56	0.47	0.52
Age	43.6	41.1	46.9
Education			
Less than 12 years	0.37	0.72	0.29
12 or more years	0.63	0.28	0.71
State of Residence			
California	0.10	0.56	0.10
Florida, Illinois, New Jersey, New York, and Texas	0.76	0.32	0.76
Other states	0.14	0.12	0.14
Number of Observations	58,620	328,024	121,222

Notes: The sample is composed of those from the 1990 and 2000 IPUMS who were born in Latin American countries, were younger than 65 years old, were at least age 18 when they arrived in the United States, and stayed for at least five years. The sample sizes pertain to the combined total for 1990 and 2000.

The sociodemographic characteristics included in the empirical specification are state of residence, education, age, and gender. Also, controls for the year an immigrant came to the United States[11] and her country of origin are included. Appendix Table A1 provides details on variable construction.

Table 1 presents descriptive data on the characteristics of immigrants from different countries in 1990. Excluding Mexico and other Central American countries notably increases the comparability between average characteristics of immigrant groups from the five "treated" countries and immigrant groups from other Latin American countries that serve as controls. Still, immigrants in the treatment group have lower naturalization rates (the difference somewhat shrinks once I correct for probability of legal status) and worse economic outcomes. Immigrants in the treatment group are also more likely to be female, younger, and less educated, while the two groups have almost the same proportion of immigrants that arrived in the United States more than 20 years ago and have a similar

11. In a sample of foreign-born immigrants obtained by pooling two cross-sections, aging effects (as captured by years spent in the United States) cannot be separately identified from year-of-entry effects, because of perfect collinearity among these two variables and census-year effects.

geographic distribution across states. The treatment group consists of 5% Costa Ricans, 33% Dominican Republicans, 7% Brazilians, 37% Colombians, and 17% Ecuadorians (not shown in the table).

A serious empirical issue related to the use of cross-sectional data is that changes in sample composition, arising from new immigrants' inflows or return migration, might affect the comparison of the treatment and control groups over time. Restricting the analysis to Latin American countries helps control for economic and political shocks that were common to the region in the 1990s, and that might have affected immigrant inflows and outflows. Also, a comparison of the sociodemographic characteristics in the 1990 and 2000 samples reveals that the observable characteristics of the treatment and comparison group have remained fairly stable in the two periods.[12] For my identification strategy to hold, however, I need to keep the assumption that between 1990 and 2000, there were no differential changes across treatment and control group in the sample composition of unobservable characteristics correlated with the propensity to naturalize or with economic outcomes.

DUAL CITIZENSHIP AND NATURALIZATION

Empirical Model

I estimate the following model of the decision to naturalize for individual *i* born in country *c* residing in state *s* and observed in year *t* = 1990 or 2000:

$$N_{icst} = \alpha + \gamma_c + \gamma_t + \delta(\Delta \text{Dual}_c \gamma_t) + \gamma_s + \mathbf{X_{it}}\Gamma_1 + \mathbf{X_{it}}\gamma_t\Gamma_2 + \mathbf{X_{it}}\gamma_s\Gamma_3 + \mathbf{X_{it}}\gamma_t\gamma_s\Gamma_4 + \gamma_t\gamma_s + \varepsilon_{icst}, \quad (1)$$

where N_{icst} is a dummy variable indicating whether the individual is a naturalized citizen, γ_c is a country-of-origin fixed effect, γ_t is a dummy variable for year 2000, ΔDual_c is a dummy variable for those countries that allowed dual citizenship during the 1990s, γ_s is a state-of-residence fixed effect, and $\mathbf{X_{it}}$ is a vector of individual sociodemographic characteristics. Standard errors are corrected for heteroskedasticity (naturally arising in a linear probability model)[13] and adjusted for correlation across observations for immigrants from the same country and interviewed in the same census year.

The inclusion of country-of-origin fixed effects controls for systematic differences in the propensity to naturalize among immigrants from different countries that are constant over time. Time effects control for changes in the propensity to naturalize over time that are common to different origin groups. The difference-in-differences (DD) parameter δ captures the mean differential 1990–2000 change in naturalization rates between immigrants from countries that changed their laws and immigrants from other Latin American countries. One important estimation issue is that shocks other than changes in the laws may have had differential effects on immigrants coming from different countries. In the next section, I review other shocks in the 1990s and discuss why allowing the effects of sociodemographic characteristics and state of residence (and their interactions) to vary over time should strongly increase the case for a causal interpretation of the DD parameter.

12. The only statistically significant differences over time are a reduction in the proportion of immigrants without a high school diploma and a higher concentration in states other than California, Florida, Illinois, New Jersey, New York, and Texas. Since these differences are common to both the treatment and the control group, they are arguably explained by general increases in education over this period and changes in immigrants' location patterns.

13. I also directly assess another weakness of linear probability models—that is, the fact that some predicted values might be outside the unit interval—and find that only a negligible share of the fitted values (less than 2% across different specifications) is indeed outside the unit interval.

Other Influences on the Propensity to Naturalize in the 1990s

Besides changes in dual citizenship laws, a number of other factors might explain rising naturalization in the 1990s. The Green Card Replacement Program, begun by the INS in 1992, required that long-term permanent residents replace their resident cards. Many immigrants chose to naturalize rather than to apply for new cards (U.S. INS 1997). There is no clear reason for this program to differentially affect people coming from different countries, once immigrants' year of entry is controlled for and its effects on naturalization are allowed to vary between 1990 and 2000.

In August 1995, the INS started the program Citizenship USA, which was aimed at reducing the significant backlog of naturalization applications accumulated in INS offices.[14] The key cities identified for the effort were those with the largest number of pending cases: Chicago, Los Angeles, Miami, New York, and San Francisco. A different geographical concentration of resources would explain higher naturalization rates as the result of this program among immigrant populations concentrated where the backlogs were higher. But, when place of residence and its interaction with year 2000 are controlled for, there should not be any reason for this campaign to differentially affect the propensity to naturalize by country of origin.

Proposition 187 was passed in California in 1994 in an attempt to curtail social services to unauthorized immigrants, and in 1995–1996, the nation was debating the virtues of restricting benefits to legal immigrants. Assuming that the anti-immigrant rhetoric of the mid-1990s affected an immigrant's propensity to naturalize,[15] if the effect depended on the intensity of anti-immigrant campaigns in the state of residence, then it is successfully controlled for by the inclusion in Eq. (1) of place of residence and its interaction with year 2000. However, this factor could nevertheless lead to differential effects by country of origin if the reaction to anti-immigrant sentiments, mainly targeting illegal immigrants, were bigger among immigrant populations with high rates of unauthorized residents.

Finally, the passage of 1996 welfare reform, restricting federal public benefits for noncitizens, may have increased the incentive to naturalize as a way of retaining access to social programs. If citizenship were indeed sought after welfare reform to protect access to social benefits, then this effect should mainly depend on state of residence (because different states implemented specific welfare reform programs)[16] and on personal characteristics (such as education, gender, and age) that predict eligibility for means-tested, categorically restricted benefits like the ones offered by the U.S. welfare system.[17]

To sum up, most of the factors listed in this section should not differentially affect naturalization rates by country of origin once observable sociodemographic characteristics are controlled for and their effects are allowed to vary over time.

Estimation Results

Tables 2, 3, and 4 report difference-in-differences (DD) estimates of the effects of recognizing dual citizenship on the decision to naturalize. As shown in column 1 of Table 2, the naturalization rate of immigrants from Colombia, Ecuador, Costa Rica, the Dominican

14. One of the reasons for the spike in the number of persons naturalized in 1996 (Figure 1) is the success of the program in reducing the backlog.

15. Although no empirical study conclusively identified the impact of Proposition 187 on naturalization, Ramakrishnan (2005) provided evidence that the political threat represented by this measure did play a significant part in increasing voting participation in the 1994 elections.

16. For a summary of the differences in the immigrant provisions included in state welfare reform laws, see Zimmermann and Tumlin (1999).

17. The inclusion of interactions between census year effects and an immigrant's year of entry further addresses the possibility that welfare participation increases with time spent in the United States (Borjas and Trejo 1991). If so, in the aftermath of welfare reform, the incentive to naturalize to retain access to social benefits would vary with length of residence.

Table 2. Difference-in-Difference Estimates of the Effect of Dual Citizenship on Naturalization Status: Latin American Immigrants (except from Mexico)

	Latin American Immigrants (except from Mexico)			
Variable	All (1)	All (2)	20 or More Years in the United States (3)	Less Than 20 Years in the United States (4)
ΔDual × Year 2000	0.045*		0.060**	0.020
	(0.017)		(0.022)	(0.017)
Costa Rica × Year 2000		0.037**		
		(0.007)		
Dominican Republic × Year 2000		0.032*		
		(0.014)		
Brazil × Year 2000		0.019		
		(0.013)		
Colombia × Year 2000		0.084**		
		(0.009)		
Ecuador × Year 2000		0.057**		
		(0.009)		
Number of Observations	243,685	243,685	67,236	176,449
R^2	0.25	0.25	0.11	0.15
Mean of Dependent Variable	0.42		0.71	0.32

Notes: The dependent variable is naturalization status. Estimates are from linear probability models. Heteroskedasticity-robust standard errors (clustered by country of origin and census year) are in parentheses. The sample is composed of those in the 1990 and 2000 IPUMS who were born in Latin American countries (except Mexico), were younger than 65 years old, were at least age 18 when they arrived in the United States, and stayed for at least five years. ΔDual = 1 for immigrants born in Costa Rica, the Dominican Republic, Brazil, Colombia, or Ecuador. All specifications include controls for state of residence, education, age, gender, year of entry in the United States, country of birth, census year, and interaction terms (year 2000 by the following: state of residence, education, age, gender, and year of entry; year 2000 by state by education; and year 2000 by state by gender).

*$p < .05$; **$p < .01$

Republic, and Brazil is estimated to rise 4.5 percentage points between 1990 and 2000 relative to the naturalization rate of immigrants from other Latin American countries. Since Dominicans and Colombians make up 70% of the treatment group, one might wonder whether these two groups drive the results. As shown in column 2 of Table 2, however, when including separate interactions for each "treated" country and year 2000, all of the coefficients are found to be positive and (with the exception of Brazil) statistically significantly different from zero.

As discussed earlier, one concern is the potential bias arising from the presence of unauthorized immigrants in census samples. Even if most illegal immigrants are from Mexico (U.S. INS 2003), excluding the Mexican-born population from the analysis might not be enough to address this issue. This concern is supported by large differences between estimates obtained for long-term immigrants versus more recent immigrants, given the different likelihood of illegal status in the two groups.[18] As shown in column 3 of Table 2, between 1990 and 2000, there is a rise in the naturalization rate of long-term immigrants in

18. Long-term immigrants are more likely to be legal because they have had time and opportunities to adjust their status. In particular, immigrants in Census 2000 who entered illegally before 1982 should have legalized under IRCA and been eligible to naturalize by the middle of the 1990s. Because of IRCA, it is helpful to split the

Table 3. Difference-in-Difference Estimates of the Effect of Dual Citizenship on Adjusted Naturalization Status

	Latin American Immigrants (except from Mexico)		Latin American Immigrants (except from Mexico, El Salvador, Guatemala, Honduras, and Nicaragua)		
Variable	All (1)	Less Than 20 Years in the United States (2)	All (3)	Less Than 20 Years in the United States (4)	All (5)
ΔDual × Year 2000	0.188**	0.159**	0.104**	0.068*	0.118**
	(0.048)	(0.047)	(0.027)	(0.025)	(0.021)
Number of Observations	243,685	176,449	179,839	122,731	179,839
R^2	0.17	0.10	0.21	0.13	0.21
Mean of Dependent Variable	0.54	0.42	0.54	0.41	0.54

Notes: The dependent variable is naturalization status divided by probability of legal status (by country of origin and year). Standard errors (clustered by country of origin and census year) are in parentheses. The sample is composed of those from the 1990 and 2000 IPUMS who were born in Latin American countries, were younger than 65 years old, were at least age 18 when they arrived in the United States, and stayed for at least five years. ΔDual = 1 for immigrants born in Costa Rica, the Dominican Republic, Brazil, Colombia, or Ecuador. All specifications include controls for state of residence, education, age, gender, year of entry in the United States, country of birth, census year, and interaction terms (year 2000 by the following: state of residence, education, age, gender, and year of entry; year 2000 by state by education; and year 2000 by state by gender). The specification in column 5 also includes interactions between year 2000 and the following: naturalization and welfare use rates in 1990; estimated outmigration rates by country; and GDP per capita, exchange rate, infant mortality rate, and unemployment rate in 1990.

*$p < .05$; **$p < .01$

the treatment group, relative to the comparison group, of 6 percentage points, or 8% of the baseline naturalization rate. Among immigrants who resided in the United States for at most 20 years (column 4), the estimated effect of dual citizenship on naturalization is smaller and imprecisely estimated. However, in this sample, the high growth rates of illegal immigration from countries in the treatment group (U.S. INS 2003) might contribute a downward bias on the estimated effects of dual citizenship.

Tables 3 and 4 report results from regressions run on samples in which individual naturalization status is divided by the estimated probability of legal status. As shown in column 1 of Table 3, the DD estimate of the 1990–2000 change in the adjusted probability of naturalization is larger, both in absolute and proportional terms, than the one estimated on raw data. The same result holds when restricting the analysis to immigrants who have been in the United States for less than 20 years (column 2). As explained in the data section, the probability of legal status might be imprecisely estimated for those countries that were granted special temporary amnesties in the 1980s and 1990s. To address this concern, in the remaining specifications, I also drop from the analysis immigrants from Guatemala, El Salvador, Honduras, and Nicaragua. As shown in column 3, between 1990 and 2000, there is a rise in the naturalization rate of immigrants from the five countries that granted dual citizenship (relative to the restricted set of other Latin American countries) of 10 percentage points, or 18% of the baseline naturalization rate. When restricting the analysis to immigrants who have been in the United States for less than 20 years (column 4), I estimate a rise in the naturalization rate of immigrants in the treatment group of 7 percentage points, or 17% of the baseline naturalization rate.

sample between immigrants who have been living in the United States for more or fewer than 20 years as a way of evaluating the differences due to the presence of illegal immigrants.

Table 4. Difference-in-Difference Estimates of the Effect of Dual Citizenship on Adjusted Naturalization Status, by Length of Residence in the United States, Gender, and Education

	Sample Excluding Mexico, El Salvador, Guatemala, Honduras, and Nicaragua				
Variable	8–15 Years in the United States (1)	Males (2)	Females (3)	Less Than a High School Diploma (4)	High School Diploma or More (5)
ΔDual × Year 2000	0.061*	0.100**	0.105**	0.043	0.129**
	(0.026)	(0.031)	(0.026)	(0.032)	(0.024)
Number of Observations	60,007	83,547	96,292	48,531	131,308
R^2	0.08	0.20	0.22	0.19	0.20
Mean of Dependent Variable	0.40	0.51	0.58	0.43	0.61

Notes: The dependent variable is naturalization status divided by probability of legal status (by country of origin and year). Standard errors (clustered by country of origin and census year) are in parentheses. The sample is composed of those in the 1990 and 2000 IPUMS who were born in Latin American countries, were younger than 65 years old, were at least age 18 when they arrived in the United States, and stayed for at least five years. ΔDual = 1 for immigrants born in Costa Rica, the Dominican Republic, Brazil, Colombia, or Ecuador. All specifications include controls for state of residence, education, age, gender (not columns 2 and 3), year of entry in the United States, country of birth, census year, and interaction terms (year 2000 by the following: state of residence, education, age, gender [not columns 2 and 3], and year of entry; year 2000 by state by education [not columns 4 and 5]; and year 2000 by state by gender [not columns 2 and 3]).

*$p < .05$; **$p < .01$

Further Specification Checks

To address the concern that changes in the laws are correlated with other country-of-origin factors that affect the likelihood of naturalization over the 1990s, I test the robustness of the results to the inclusion of controls for some initial conditions at the country level that might differentially affect absolute changes in naturalization rates over the 1990s. Column 5 in Table 3 shows that the estimates are stable to the inclusion of interactions between year 2000 and (1) a set of origin group characteristics (naturalization and welfare participation rates in 1990, and a measure of outmigration rates)[19]; and (2) a set of country-of-origin factors: per capita GDP, exchange rate with the United States, infant mortality rate, and unemployment rate in 1990.[20] In addition, to address the concern that other factors affecting the naturalization decision in the 1990s may have had a different impact on people who were granted (or not granted) dual citizenship rights, I restrict the comparison group either to countries that did allow dual citizenship in 1990 or to countries that did not, and find stable estimation results (not reported).

Column 1 in Table 4 presents estimates obtained from a sample of immigrants who have resided in the country for 8 to 15 years. On one hand, I increase the minimum number of years of residence because the five-year residency requirement applies since legal permanent resident status acquisition, and immigrants often adjust their status while already residing in the United States. On the other hand, limiting the length of residence to at most 15 years guarantees that respondents from the 2000 census could not have already been citizens in 1990 and addresses the concern that the results in Table 3 are mechanically driven by different naturalization rates across treatment and control countries in 1990. Estimates are remarkably similar to the ones obtained from a sample of immigrants who stayed

19. Naturalization and welfare participation rates are calculated using 1990 census data. I use estimates of the outmigration rate of 1970–1974 arrivals by 1980, calculated in Borjas and Bratsberg (1996).

20. Data come from the World Bank (World Development Indicators).

Table 5. 1980–1990 Relative Changes in Naturalization Rates

	Sample Excluding Mexico		Sample Excluding Mexico, El Salvador, Guatemala, Honduras, and Mexico	
Variable	All (1)	Excluding New York (2)	All (3)	Excluding New York (4)
ΔDual × Year 1990	0.016 (0.011)	0.016 (0.013)	0.017 (0.011)	0.016 (0.012)
Number of Observations	137,129	98,106	114,019	77,406
R^2	0.20	0.22	0.20	0.21

Notes: The dependent variable is naturalization status. Robust standard errors (clustered by country of origin and census year) are in parentheses. The sample is composed of those in the 1980 and 1990 IPUMS who were born in Latin American countries, were younger than 65 years old, were at least aged 18 when they arrived in the United States, and stayed for at least five years. ΔDual = 1 for immigrants born in Costa Rica, the Dominican Republic, Brazil, Colombia, or Ecuador. All specifications include controls for state of residence, education, age, gender, year of entry in the United States, country of birth, census year, and interaction terms (year 1990 by the following: state of residence, education, age, gender, and year of entry; year 1990 by state by education; and year 1990 by state by gender).

between 5 and 20 years (column 4 of Table 3): dual citizenship recognition is associated with an increase of 6.1 percentage points (15% of the baseline) in the naturalization rate of immigrants from treatment countries.

I also estimate Eq. (1) on subsamples defined by gender and level of education. Splitting the sample by observable characteristics is problematic because it takes away some of the variation I rely on to control for the effects of welfare reform and other factors contemporaneous with changes in dual citizenship laws. However, to the extent that welfare reform primarily affected low-income families headed by single mothers,[21] estimation results obtained on samples of males or more-educated immigrants are less likely to be confounded by the effects of the reform. As shown in Table 4 (columns 2 through 5), the results are unchanged when splitting the sample by gender, while they differ by education. Dual citizenship rights raised the propensity to naturalize in the target group with at least a high school diploma but had a small and statistically insignificant effect on those without a high school diploma. This result is consistent with the findings of Bloemraad (2004): using a unique feature of the Canadian censuses—which ask respondents to report multiple citizenship—she found that those with higher human capital were more likely to identify themselves as dual citizens. The positive correlation between education and responsiveness to dual citizenship rights might arise from different, not mutually exclusive, reasons. For example, the finding is consistent with the implied benefits of dual citizenship being higher for more-educated immigrants, as would be expected if education were correlated with higher career and income benefits from transnational activities. In addition, higher education might correlate with a greater sense of personal political efficacy. If so, people with more education might perceive a higher implied cost from naturalization when dual citizenship rights are denied.

To address the concern of policy endogeneity, I explore trends in naturalization rates in the treatment and control groups before the passage of the laws, that is, between 1980 and 1990. As shown in Table 5, between 1980 and 1990, immigrants from the five countries that granted dual citizenship ($\Delta DC_c = 1$) experienced a change in the probability of

21. The program for which eligibility rules changed more dramatically (Aid to Families with Dependent Children) was primarily offered to low-income single-parent families.

Table 6. 1980–1990 Relative Changes in Employment and Income Measures

Variable	Employed						
	Any Work for Pay (1)	Self-employed (2)	Private Sector (3)	Public Sector (4)	Log Annual Earnings (5)	Welfare Use (6)	Log Income From Welfare (7)
A. Full Sample							
ΔDual × year 2000	0.036**	0.011**	0.015*	0.010**	0.012	–0.015*	–0.174**
	(0.006)	(0.004)	(0.007)	(0.002)	(0.010)	(0.005)	(0.042)
Number of observations	179,839	179,839	179,839	179,839	139,425	179,839	8,651
R^2	0.10	0.03	0.05	0.05	0.18	0.05	0.07
Mean of dependent variable	0.70	0.07	0.54	0.08	9.61	0.05	7.78
B. Males							
ΔDual × year 2000	0.018**	0.004	0.003	0.011**	–0.008	–0.002	–0.160†
	(0.005)	(0.005)	(0.009)	(0.003)	(0.011)	(0.002)	(0.088)
C. High School Diploma or More							
ΔDual × year 2000	0.035**	0.010*	0.015†	0.009**	0.025*	–0.006†	–0.166**
	(0.007)	(0.004)	(0.008)	(0.003)	(0.010)	(0.004)	(0.052)

Notes: The dependent variables are listed in column headings. Standard errors (clustered by country of origin and census year) are in parentheses. The sample is composed of those in the 1980 and 1990 IPUMS who were born in Latin American countries, were younger than 65 years old, were at least age 18 when they arrived in the United States, and stayed for at least five years. ΔDual = 1 for immigrants born in Costa Rica, the Dominican Republic, Brazil, Colombia, or Ecuador. All specifications include controls for state of residence, education, age, gender (except panel B), year of entry in the United States, country of birth, census year, and interaction terms (year 2000 by the following: state of residence, education [except panel C], age, gender [except panel B], and year of entry; year 2000 by state by education [except panel C]; and year 2000 by state by gender [except panel B]).

†$p < .10$; *$p < .05$; **$p < .01$

naturalization that is positive but small in magnitude and not statistically different from zero. The lack of discernible differential trends in naturalization rates before the policy changes took place corroborates the policy exogeneity assumption that must hold for a causal interpretation of the DD estimates. Also, the results are stable to the exclusion of immigrants living in the state of New York. Given that lobbying for dual citizenship among Colombians, Ecuadorians, and Dominicans was concentrated in New York City (Jones-Correa 2001b), the stability of the results to the exclusion of respondents in the state of New York is further evidence that lobbying activities should not be correlated with increases in the number of naturalizations that predate the passage of the laws.

DUAL CITIZENSHIP AND LABOR OUTCOMES

Table 6 presents DD estimates of the effects of dual citizenship on labor outcomes, that is, the estimated δ's from specifications like Eq. (1), in which the dependent variable is an employment or income measure. The sample is restricted to immigrants from Latin American countries, except from Mexico, Guatemala, El Salvador, Honduras, and Nicaragua. Interactions between year effects and sociodemographic characteristics and state-of-residence effects control for changing local labor market conditions and changing returns to observable skills over the 1990s.

As shown in panel A, immigrants from the countries that granted dual citizenship during the 1990s experience a 3.6 percentage point increase in the probability of full-time work relative to other Latin American immigrant groups (column 1). The gains are evenly

Table 7. 1980–1990 Relative Changes in Labor Outcomes

Variable	Employed						
	Any Work for Pay (1)	Self-employed (2)	Private Sector (3)	Public Sector (4)	Log Annual Earnings (5)	Welfare Use (6)	Log Income From Welfare (7)
A. Full Sample							
ΔDual × year 1990	–0.008	0.007	–0.010	–0.006*	–0.047**	–0.002	0.190**
	(0.010)	(0.006)	(0.010)	(0.004)	(0.015)	(0.005)	(0.057)
Number of observations	114,019	114,019	114,019	114,019	88,984	114,019	5,557
R^2	0.12	0.05	0.05	0.05	0.20	0.05	0.09
Mean of dependent variable	0.70	0.07	0.56	0.08	9.61	0.05	7.99
B. Males							
ΔDual × year 1990	–0.010	0.013	–0.009	–0.013**	–0.023	–0.006*	0.286**
	(0.011)	(0.009)	(0.013)	(0.004)	(0.019)	(0.003)	(0.062)
C. High School Diploma or More							
ΔDual × year 1990	0.108	0.007	–0.006	–0.006*	–0.059**	–0.001	0.346**
	(0.065)	(0.005)	(0.009)	(0.002)	(0.018)	(0.003)	(0.060)

Notes: Robust standard errors (clustered by country of origin and census year) are in parentheses. The sample is composed of those in the 1980 and 1980 IPUMS who were born in Latin American countries, were younger than 65 years old, were at least age 18 when they arrived in the United States, and stayed for at least five years. ΔDual = 1 for immigrants born in Costa Rica, the Dominican Republic, Brazil, Colombia, or Ecuador. All specifications include controls for state of residence, education, age, gender (except panel B), year of entry in the United States, country of birth, census year, and interaction terms (year 1990 by the following: state of residence, education [except panel C], age, gender [except panel B], and year of entry; year 1990 by state by education [except panel C]; and year 1990 by state by gender [except panel B]).

*$p < .05$; **$p < .01$

distributed between self-employment activities (column 2) and increased work for wages, either in the private or public sector (columns 3 and 4). Immigrants in the treatment group experience a statistically insignificant 1% earnings gain (column 5). Finally, they experience a 1.5 percentage point relative drop in the probability of receiving income from public assistance programs (column 6), and if on welfare, a 17% relative drop in payments (column 7).

I also estimate the effects of law changes on economic outcomes in subsamples defined by gender and level of education. As already mentioned, given that welfare reform mostly affected low-income families headed by single mothers, the effects of welfare reform are less likely to confound the estimated impact of law changes among males (panel B of Table 6) or more-educated immigrants (panel C). A notable finding is that dual citizenship law changes raised the earnings of the treatment group with a high school diploma by a statistically significant 2.5%. This finding is striking in light of the fact that an analysis of data drawn from the 1980 and 1990 censuses (Table 7) reveals that law changes in the 1990s are correlated with large earnings drops in the 1980s, both in the full sample (panel A) and in the subsample of more-educated immigrants (panel C). Evidence of earnings drops (and welfare payment increases) in the treatment group in the 1980s has two implications. First, it seems to rule out the policy endogeneity scenario discussed earlier: if countries granted dual citizenship to foster ties that could pay off in terms of remittances or investments, then we would expect to observe improved economic conditions among their expatriates that predate changes in the laws. Second, it suggests that the estimated impact of law changes on

economic outcomes may be biased against finding a positive impact on earnings, of which I nevertheless find evidence among more-educated immigrants.

The Effects of American Citizenship Acquisition

American citizenship may provide greater employment opportunities in different ways. Not only is American citizenship required for certain jobs (for example, in many federal agencies and in the public safety industry),[22] but the act of naturalization may also remove employment barriers other than those stated by the law. Discrimination by employers or concerns that noncitizens are less committed to jobs might cause naturalized citizens to be preferred in the hiring process over noncitizens. Employers may also value American citizenship as an easy way to assess legal status.

Cross-sectional evidence shows that naturalized citizens experience better labor outcomes than noncitizens, even after the number of years since migration are controlled for,[23] but selection effects hinder a causal interpretation of this evidence. On panel data, Bratsberg, Ragan, and Nasir (2002) found that—consistent with the removal of employment barriers—young male immigrants gain access to public-sector, white-collar, and union jobs after they naturalize, and they also experience more rapid wage growth. The results are robust to the inclusion of controls for individual unobserved productivity, and they support the theory that naturalization facilitates assimilation into the U.S. labor market. Because it is difficult to find exogenous sources of variation in naturalization, however, no study has attempted to isolate the effects of naturalization on labor market assimilation using large and representative cross-sectional data. Can changes in dual citizenship laws be used to improve our understanding of the causal effects of American citizenship acquisition?

Interpreting the effects of changes in dual citizenship laws on labor outcomes as evidence of the causal effect of naturalization requires assuming policy exogeneity and no country-specific trends in outcomes (something I indirectly test for with placebo regressions for the 1980s). Under these assumptions, I can calculate the implied returns to naturalization when using changes in dual citizenship laws as a source of variation: I find them to be very large, several orders of magnitude larger than the cross-sectional correlations.[24] This result, interpreted as a "local average treatment effect" (Imbens and Angrist 1994), suggests that newly granted dual nationality rights predominantly affect the likelihood of naturalization for groups with especially large employment and career gains from holding American citizenship. For example, more-educated immigrants, who appear to have been mostly affected by changes in the laws, might experience larger career and income benefits from transnational activities once they hold citizenship in both their country of origin and the United States.

CONCLUSIONS

In this article, I find that newly granted dual citizenship rights by five important Latin American sending countries in the 1990s positively affected the U.S. naturalization rate among immigrants from those countries. The effects are sizable in magnitude, implying an increase of 10 percentage points in the probability of naturalization over the 1990s among

22. Plascencia, Freeman, and Setzler (2003), however, documented that the number and range of job restrictions based on citizenship have declined dramatically in recent decades.

23. Ordinary least squares estimates in regressions that control for the sociodemographic characteristics also included in Eq. (1) show that in 2000, naturalization status was associated with a 4.8 percentage point increase in the probability of working full time, a 0.3 percentage point drop in the probability of being on welfare, and a 14% increase in annual earnings. As opposed to earlier periods (Chiswick 1978), the "naturalization premium" is statistically significant even if I control for length of stay in the United States. Separate regressions by education show statistically insignificant differences across immigrant groups with or without a high school diploma.

24. Instrumental variables estimates show that naturalization is associated with a 40 to 50 percentage point increase in the probability of full-time employment and with a 45% increase in annual earnings.

immigrants coming from Colombia, the Dominican Republic, Ecuador, Costa Rica, and Brazil. As is common in the case of quasi-experiments, this result might not fully generalize to other cases (that is, other origin groups and/or periods). With this caveat in mind, findings in this article support the view that dual nationality rights promote citizenship acquisition in the receiving country—an issue upon which previous empirical literature was inconclusive. More broadly, these findings indicate that research on the determinants of an immigrant's decision to naturalize should pay renewed attention to modeling how factors and policies in the sending countries might affect decision-making contexts.

Immigrants coming from countries that have recently allowed dual citizenship are found not only to be more likely to naturalize but also to experience relative employment and earnings gains and to lower their reliance on welfare. In the context of the debate on the causes of the surge in naturalization in the 1990s, these findings provide evidence against the notion that immigrants chose U.S. citizenship primarily for instrumental reasons, such as to retain (or acquire) welfare eligibility. In support of the existence of behavioral responses to welfare reform, Borjas (2002) documented that the national origin groups most likely to receive public assistance in the pre-PRWORA period experienced the largest increase in naturalization after 1996. However, findings in the present research—as with previous evidence provided by Fix, Passel, and Sucher (2003) and Van Hook et al. (2006)—involve a different image of immigrants than a view that depicts them as primarily motivated to naturalize by the desire to obtain welfare in the United States.

The present article also contributes to the long-standing debate over the pros and cons of dual nationality. From the point of view of receiving states, dual nationality has been criticized as a sort of political bigamy, a way of devaluing the meaning of citizenship and impeding assimilation in the destination country. Against this notion, previous work has shown that policies of dual nationality help to hasten the incorporation of immigrants into American politics, in the case of both Latin Americans (Jones-Correa 2001a) and immigrants from other countries (Ramakrishnan 2005). The findings of the present study support the view that dual nationality might also actively foster economic assimilation in the receiving country. This result is important in light of the growing number of countries that have altered their laws to permit their citizens to retain nationality despite naturalization elsewhere[25] and indicates that host countries should welcome these changes, instead of opposing them. This is relevant from a policy point of view of receiving countries as well. First, receiving countries are sometimes involved in bilateral agreements with governments of sending countries that are in the process of conferring dual nationality rights to their expatriates.[26] Second, the attitude of the government toward dual citizenship—not only its legal recognition—might carry important symbolic repercussions for citizenship (Bloemraad 2006a).[27]

This article also relates to the very limited literature on the effects of naturalization on an immigrant's economic assimilation (Bratsberg et al. 2002; Chiswick 1978): the effects of dual citizenship on improved economic performance, if mediated through naturalization, are consistent with American citizenship conferring greater economic opportunities. A closely related literature is the one that studies the effects of legal status on immigrants' labor market assimilation: variation induced by amnesty programs shows that legalization positively affects labor market performance (Kaushal 2006; Kossoudji

25. For instance, Sweden made this change in 2001; Australia, in 2002; and the Philippines, in 2003.

26. For example, in 2002, after consultation with the U.S. government, Pakistan granted dual nationality rights to its expatriates in the United States (http://www.pakistan-embassy.org/dual.php). In 2003, India recognized dual nationality rights to its expatriates in the United States (and only a few other countries).

27. As discussed in Bloemraad (2006a), Canada and the United States differ significantly in this respect: Citizenship and Immigration Canada openly advertises that Canadian law does not prevent dual citizenship, while the U.S. government recognizes that dual nationality exists but does not encourage it as a matter of policy (http://travel.state.gov/travel/cis_pa_tw/cis/cis_1753.html).

and Cobb-Clark 2002). Further research is needed to uncover how legal status and citizenship status affect immigrants' economic assimilation; the answer to this question should play a key role in the design of immigration and naturalization policies.

One important potential behavioral effect of dual nationality rights is not considered in the present article. For those holding American citizenship (either because they naturalized or obtained it through their parents' naturalization), dual citizenship rights might increase return migration. The option to return to one's country of origin might in turn affect investments in human capital. On one hand, immigrants might experience a smaller incentive to invest in U.S.-specific human capital because of the potentially limited horizon of their working life in the host country (Borjas 1999). This would not be the case, however, if skills are transferable across countries. Borjas and Bratsberg (1996) indeed showed that if return migration is planned as part of an optimal life-cycle residential location sequence, then it can arise only because a temporary stay in the United States increases the worker's earnings in the source country. There is no empirical evidence on the correlation between dual citizenship rights and probability of return migration, and only limited evidence on the way in which reversible migration decisions affect a migrant's human capital accumulation and labor supply decisions while in the United States. In favor of the hypothesis that differences in time horizons affect human capital investments and economic assimilation, Cortes (2004) found that refugee immigrants experience faster growth in total earnings and higher rates of human capital accumulation than economic immigrants. When considering the case of refugees, however, factors other than the "reversibility" of migration might play a role: as discussed by Bloemraad (2006a) and Portes and Rumbaut (2006), the greater resettlement assistance received by refugees through both U.S. government and nonprofit support might provide them not only with resources that help in the process of economic assimilation but also with more normative feelings of attachment that increase the likelihood of naturalization. The link between dual nationality rights, likelihood of return migration, and naturalization (as a function of refugee status as well) is an important topic for future research.

Appendix Table A1. Variable Description

Variable	Description
Naturalized	= 1 if respondent is a naturalized citizen; 0 otherwise.
Year 2000	= 1 if individual was interviewed in Census 2000; 0 otherwise.
ΔDual	= 1 if individual was born in Costa Rica, the Dominican Republic, Brazil, Colombia, or Ecuador; 0 otherwise.
Employed	= 1 if individual worked at least 15 hours per week for 20 weeks in the year before the census interview; disaggregated in "any work for pay," either "self-employed" or employed for salary in the "private sector" or in the "public sector."
Log Annual Earnings	Logarithm of total earnings (in 1989 dollars) from wage/salary work and self-employment earnings received during the previous year.
Log Income From Welfare	Logarithm total income (in 1989 dollars) received during the previous year from various public assistance programs (Supplemental Security Income, Aid to Families with Dependent Children and General Assistance).
Welfare Use	= 1 if income from welfare > 0; 0 otherwise.
Male	= 1 if respondent is male; 0 otherwise.

(continued)

(Appendix Table A1, continued)

Variable	Description
Age	Seven dummy variables for the following age intervals: younger than 30, 31–35, 36–40, 41–45, 46–50, 51–55, and 56–65.
Education	Six dummy variables indicating the highest grade completed: at most 4th grade, 5th to 8th grade, 9th to 12th grade, high school diploma, some college, and bachelor's (or higher) degree.
State of Residence	51 dummy variables for U.S. state of residence.
Year of Entry in the United States	Nine dummy variables for the following intervals: before 1965, 1965–1969, 1970–1974, 1975–1979, 1980–1981, 1982–1984, 1985–1990, 1991–1994, 1995–1997.
Country of Origin	23 dummy variables for country of birth: Mexico, Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Cuba, the Dominican Republic, Haiti, Jamaica, Trinidad and Tobago, British West Indies, Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, British Guyana, Peru, and Venezuela.

REFERENCES

Baker, B. 2007. "Trends in Naturalization Rates." Fact Sheet, December 2007. Office of Immigration Statistics, U.S. Department of Homeland Security.

Bleakley, H. and A. Chin. 2004. "Language Skills and Earnings: Evidence From Childhood Immigrants." *Review of Economics and Statistics* 86:481–96.

Bloemraad, I. 2004. "Who Claims Dual Citizenship? The Limits of Postnationalism, the Possibilities of Transnationalism, and the Persistence of Traditional Citizenship." *International Migration Review* 38:389–426.

———. 2006a. *Becoming a Citizen: Incorporating Immigrants and Refugees in the United States and Canada*. Berkeley, CA: University of California Press.

———. 2006b. "Becoming a Citizen in the United States and Canada: Structured Mobilization and Immigrant Political Incorporation." *Social Forces* 85:667–95.

Borjas, G.J. 1999. "The Economic Analysis of Immigration." Pp. 1697–760 in *Handbook of Labor Economics,* edited by O. Ashenfelter and D. Card. Amsterdam: Elsevier.

———. 2002. "Welfare Reform and Immigrant Participation in Welfare Programs." *International Migration Review* 36:1093–23.

Borjas, G.J., and B. Bratsberg. 1996. "Who Leaves? The Outmigration of the Foreign-Born." *Review of Economics and Statistics* 87:165–76.

Borjas, G.J., and S. Trejo. 1991. "Immigrant Participation in the Welfare System." *Industrial and Labor Relations Review* 44:195–211.

Bratsberg, B., J.F. Ragan, and Z.M. Nasir. 2002. "The Effect of Naturalization on Wage Growth: A Panel Study of Young Male Immigrants." *Journal of Labor Economics* 20:568–97.

Bueker, C.S. 2006. *From Immigrant to Naturalized Citizen*. New York: LFB Scholarly Publishing LLC.

Chiswick, B.R. 1978. "The Effect of Americanization on the Earnings of Foreign-born Men." *Journal of Political Economy* 86:897–921.

Cortes, K. 2004. "Are Refugees Different From Economic Immigrants? Some Empirical Evidence on the Heterogeneity of Immigrant Groups in the United States." *Review of Economics and Statistics* 86:465–80.

Costanzo, J., C. Davis, C. Irazi, D. Goodkind, and R. Ramirez. 2001. "Evaluating Components of International Migration: The Residual Foreign Born." Population Division Working Paper Series No. 61. U.S. Census Bureau, Washington, DC.

DeSipio, L. 1996a. *Counting on the Latino Vote: Latinos as a New Electorate*. Charlottesville, VA: The University Press of Virginia.

———. 1996b. "Making Citizens or Good Citizens? Naturalization as a Predictor of Organizational and Electoral Behavior Among Latino Immigrants." *Hispanic Journal of Behavioral Sciences* 18:194–213.

Fix, M.E., J.S. Passel, and K. Sucher. 2003. "Trends in Naturalization." Immigration Studies Program Brief. No. 3. The Urban Institute, Washington, DC.

Imbens, G.W. and J.D. Angrist. 1994. "Identification and Estimation of Local Average Treatment Effects." *Econometrica* 62:467–75.

Kaushal, N. 2006. "Amnesty Programs and the Labor Market Outcomes of Undocumented Workers." *Journal of Human Resources* 61:631–47.

Kossoudji, S.A. and D. Cobb-Clark. 2002. "Coming Out of the Shadows: Learning About Legal Status and Wages From the Legalized Population." *Journal of Labor Economics* 20:598–628.

Jasso, G. and M.R. Rosenzweig. 1990. "Family Reunification and the Immigration Multiplier: U.S. Immigration Law, Origin-Country Conditions, and the Reproduction of Immigrants." *Demography* 23:291–311.

Jones-Correa, M. 2001a. "Institutional and Contextual Factors in Immigrant Citizenship and Voting." *Citizenship Studies* 5:41–56.

———. 2001b. "Under Two Flags: Dual Nationality in Latin America and Its Consequences for Naturalization in the United States." *International Migration Review* 35:997–1029.

Liang, Z. 1994. "Social Contact, Social Capital, and the Naturalization Process: Evidence From Six Immigrant Groups." *Social Science Research* 23:407–37.

Lofstrom, M. 2002. "Labor Market Assimilation and the Self-Employment Decision of Immigrant Entrepreneurs." *Journal of Population Economics* 15:83–114.

Meyer, B.D. 1995. "Natural and Quasi-Experiments in Economics." *Journal of Business and Economic Statistics* 13:151–61.

Passel, J.S. and R. Clark. 1997. "How Many Naturalized Citizens Are There? An Assessment of Data Quality in the Decennial Census and CPS." Paper presented at the annual meeting of the Population Association of America, Washington, DC, March 27–29.

Plascencia, L.F., G.P. Freeman, and M. Setzler. 2003. "The Decline of Barriers to Immigrant Economic and Political Rights in the American States: 1977–2001." *International Migration Review* 37:5–23.

Portes, A. and R.G. Rumbaut. 2006. *Immigrant America: A Portrait*. Berkeley: University of California Press.

Ramakrishnan, S.K. 2005. *Democracy in Immigrant America: Changing Demographics and Political Participation*. Palo Alto, CA: Stanford University Press.

Robinson, J.G. 2001. "ESCAP II: Demographic Analysis Results." Executive Steering Committee for A.C.E. Policy II, Report No. 1: U.S. Census Bureau, Washington, DC.

Ruggles, S., M. Sobek, T. Alexander, C.A. Fitch, R. Goeken, P.K. Hall, M. King, and C. Ronnander. 2004. "Integrated Public Use Microdata Series: Version 3.0." Minneapolis, MN: Minnesota Population Center.

U.S. Immigration and Naturalization Service. 1997. *1996 Statistical Yearbook*, Washington, DC: U.S. Government Printing Office.

———. 2003. "Estimates of the Unauthorized Immigrant Population Residing in the United States: 1990 to 2000." Available online at http://www.dhs.gov/xlibrary/assets/statistics/publications/Ill_Report_1211.pdf.

Van Hook, J., S.K. Brown, and F.D. Bean. 2006. "For Love or for Money? Welfare Reform and Immigrant Naturalization." *Social Forces* 85:643–66.

Warren, R. 1995. "Estimates of the Undocumented Immigrant Population Residing in the United States by Country of Origin and State of Residence: October 1992." Unpublished document. U.S. Immigration and Naturalization Service.

Yang, P.Q. 1994. "Explaining Immigrant Naturalization." *International Migration Review* 28:449–77.

Zimmermann, W. and K.C. Tumlin. 1999. "Patchwork Policies: State Assistance for Immigrants Under Welfare Reform." Occasional Paper 24. The Urban Institute, Washington, DC.